

FIG. 1a

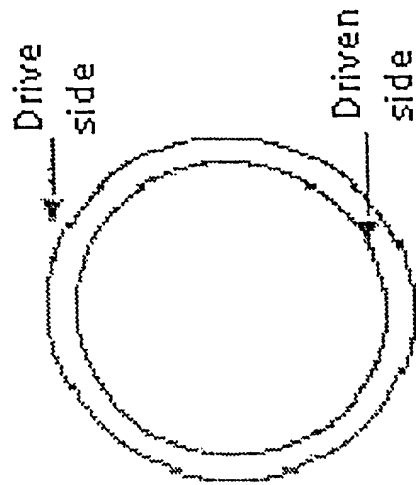


FIG. 1b

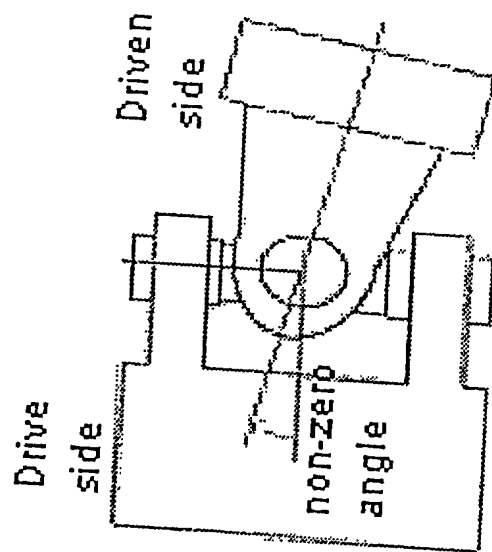


FIG. 2a

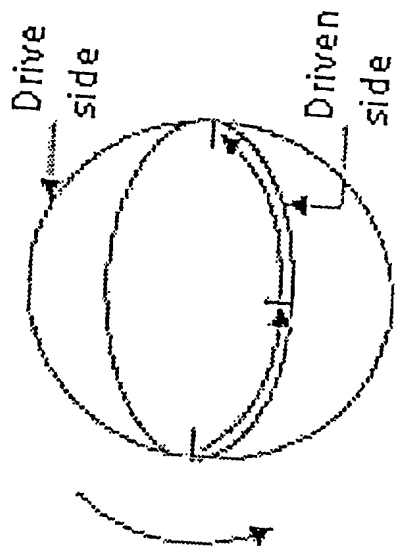


FIG. 2b

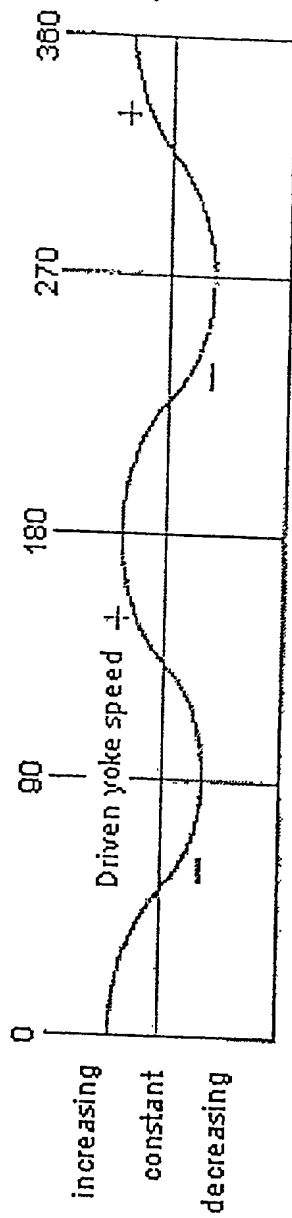


FIG. 3

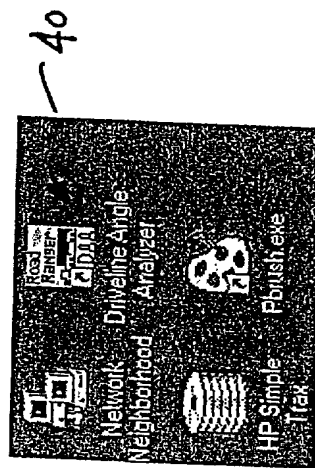


FIG. 4

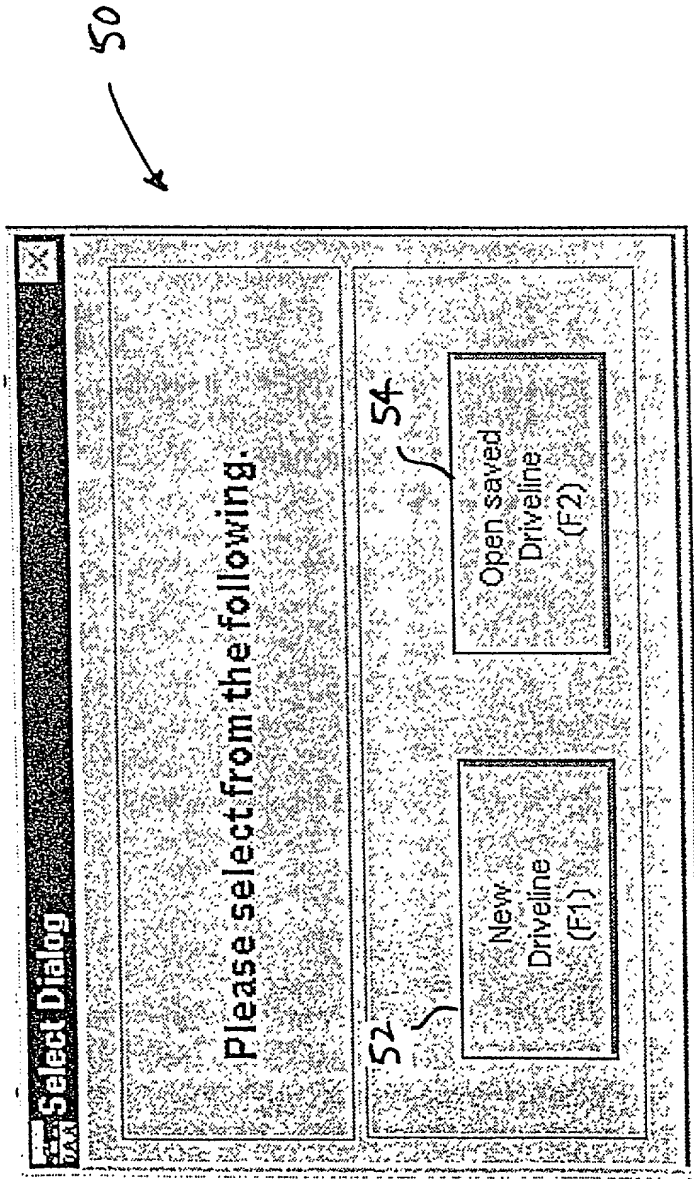


FIG. 5

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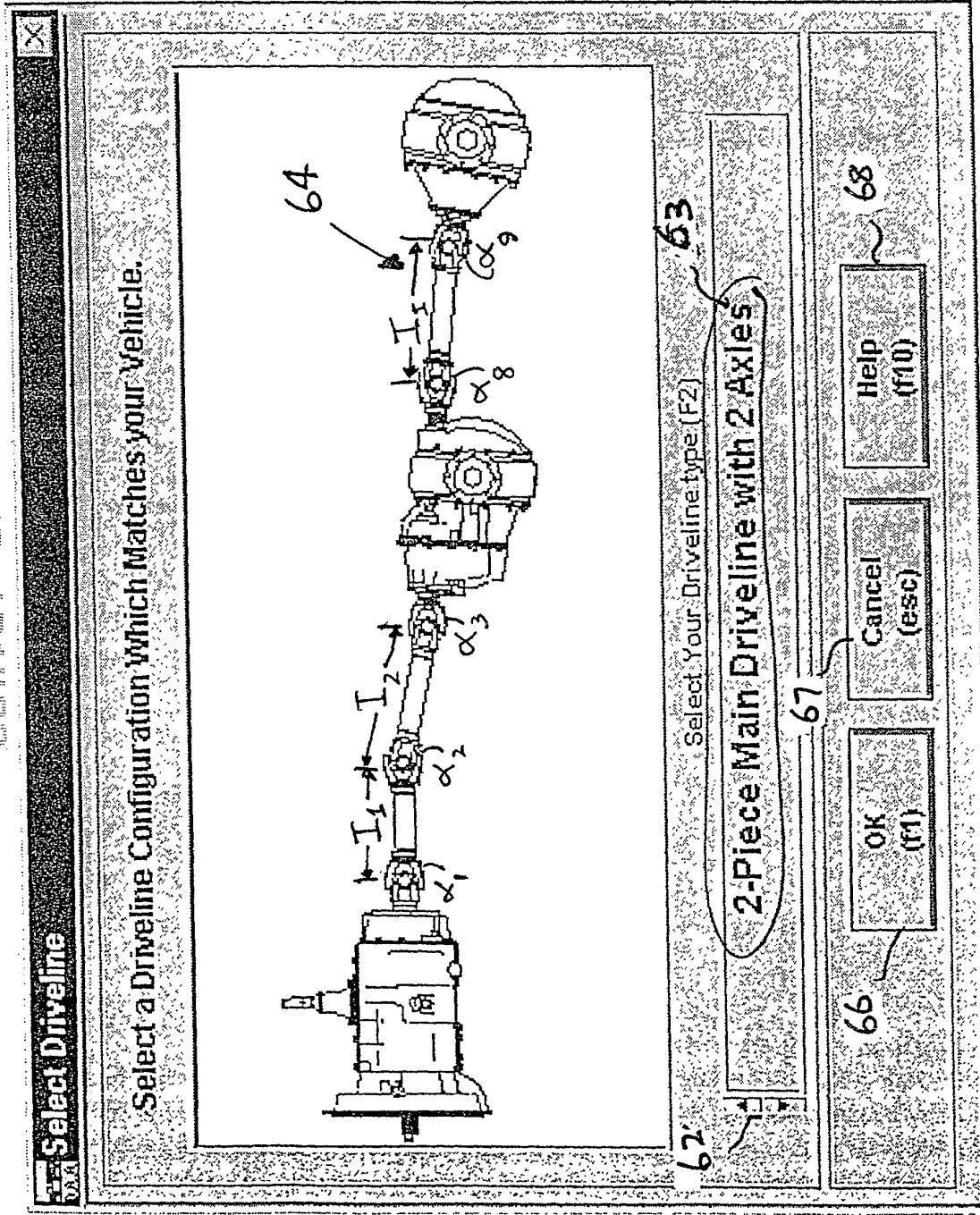


FIG. 6

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DriveLine/Angle Analyzer

File Help

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Enter Vehicle Information

Note: Red Fields are Required for Initial Calculations.

Truck Unit # (F1):

Fleet Name:

Fleet Account #:

Truck Manufacturer:

Truck Model:

VIN #:

Trans Model #:

Trans Serial #:

Clutch Manufacturer:

Clutch Size:

Comments:

of Clutch Springs:

Clutch Part #:

Engine Make/Model #:

Wheel Base:

Steer Axle Tire Size:

Drive Axle Tire Size:

Main DriveLine Series:

Interaxle DriveLine Series:

Axle Manufacturer:

D-Head Serial #:

R-Head Serial #:

Vehicle Mileage:

Vehicle Build Date:

Tested By:

< Select Axle Manufacturer >

< Select a DriveLine Series >

< Select a DriveLine Series >

New DriveLine: F2

Open: F3

Save: F4

Print Worksheet: F5

Information: F6

Measurements: F7

Print Results: F8

Directions: F9

Help: F10

Exit DWA: Esc

FIG. 7

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Worksheet

Print

Printer

Print

2-Piece Main with 2Axles

Driveline Angle Analyzer

The diagram illustrates a 2-piece main with 2 axles. Key components and labels include:

- Tran:** Transmission, labeled with a box for 'deg' and '84'.
- #1 Prop shaft:** First propeller shaft, labeled with a box for 'deg' and '81'.
- #2 Prop shaft:** Second propeller shaft, labeled with a box for 'deg' and '82'.
- #3 Prop shaft:** Third propeller shaft, labeled with a box for 'deg' and '83'.
- D-Head:** Drive head, labeled with a box for 'deg' and '85'.
- R-Head:** Rear head, labeled with a box for 'deg' and '86'.
- Angle:** Various points where the angle is measured, indicated by boxes and labels like 'Angle', 'deg', and '87'.

Truck Unit #		Cubitt Manufacturer		Main Driveline Series		Tested by:	
First Name		Cubitt Size		Liberate Driveline Series		Mat engine RPM in top gear	
First Account #		# of Cubitt springs		Atto Manufacturer		Top gear ratio of trans	
Truck Manufacturer		Cubitt Description		Atto Model #			
Truck Model		Engine Type		D-Head Serial #			
VIN #		Vehicle EGR		R-Head Serial #			
Tran Model #		Steer Atto Tire Size					
Tran Serial #		Drive Atto Tire Size					

Print **F1** Cancel **Esc**

Before measuring Angles:

1. Clock not and rear wheels
2. Place trans in NEUTRAL
3. Release parking brake

Measurement Directions:

To Measure Driveline Length:
All drive shaft lengths are measured from the yoke end cap center.

Diagram showing a driveline with a yoke end cap. A dimension line indicates the measurement from the center of the yoke end cap to the other end of the shaft, labeled 'Length (ft)'.

To Measure Component Angles:
Positive angles (+) - The end closest to the front of the vehicle is higher than the end furthest from the front of the vehicle.

Diagram showing a driveline with a positive angle. The front of the vehicle is higher than the rear, indicated by a '+' sign.

Front of Vehicle

Diagram showing a driveline with a negative angle. The rear of the vehicle is higher than the front, indicated by a '-' sign.

Rear of Vehicle

Negative angles (-) - The end closest to the front of the vehicle is lower than the end furthest from the front of the vehicle.

To check Driveline Phasing:
Driveline phase is zero degrees when the yoke end caps are aligned

Driveline phase is 90 degrees when the yoke end caps are totaligned

Two diagrams showing driveline phasing. The first shows yoke end caps aligned, labeled '0 deg.'. The second shows yoke end caps totaligned, labeled '90 deg.'.

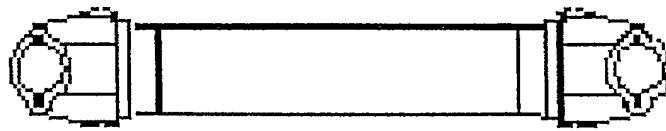


FIG. 9a

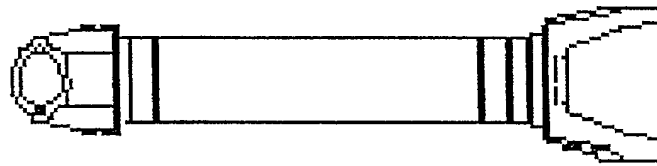


FIG. 9b

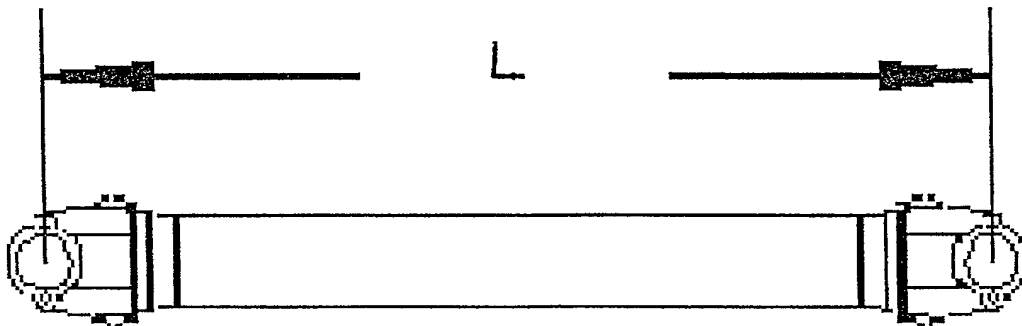


FIG. 10

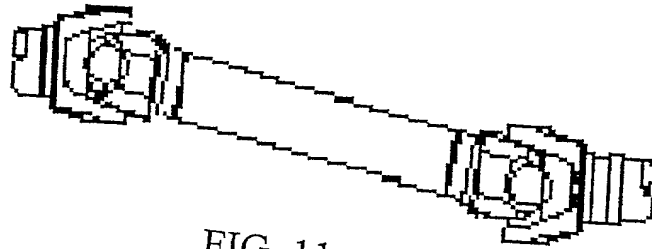


FIG. 11a

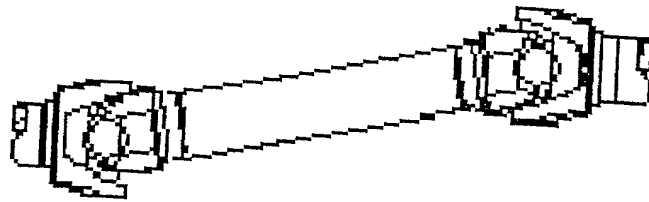


FIG. 11b

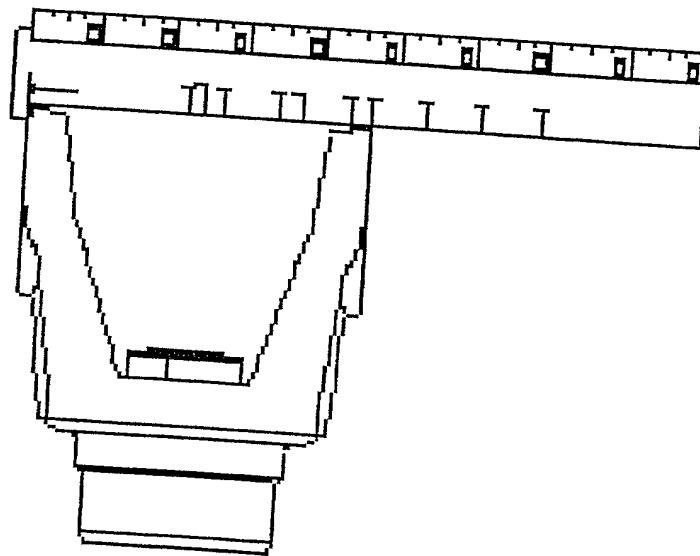


FIG. 12

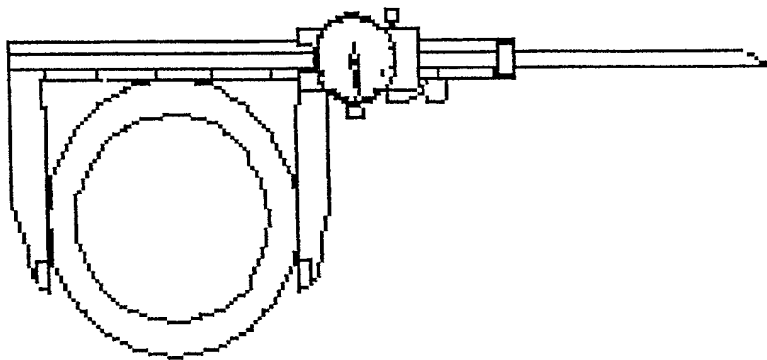


FIG. 13

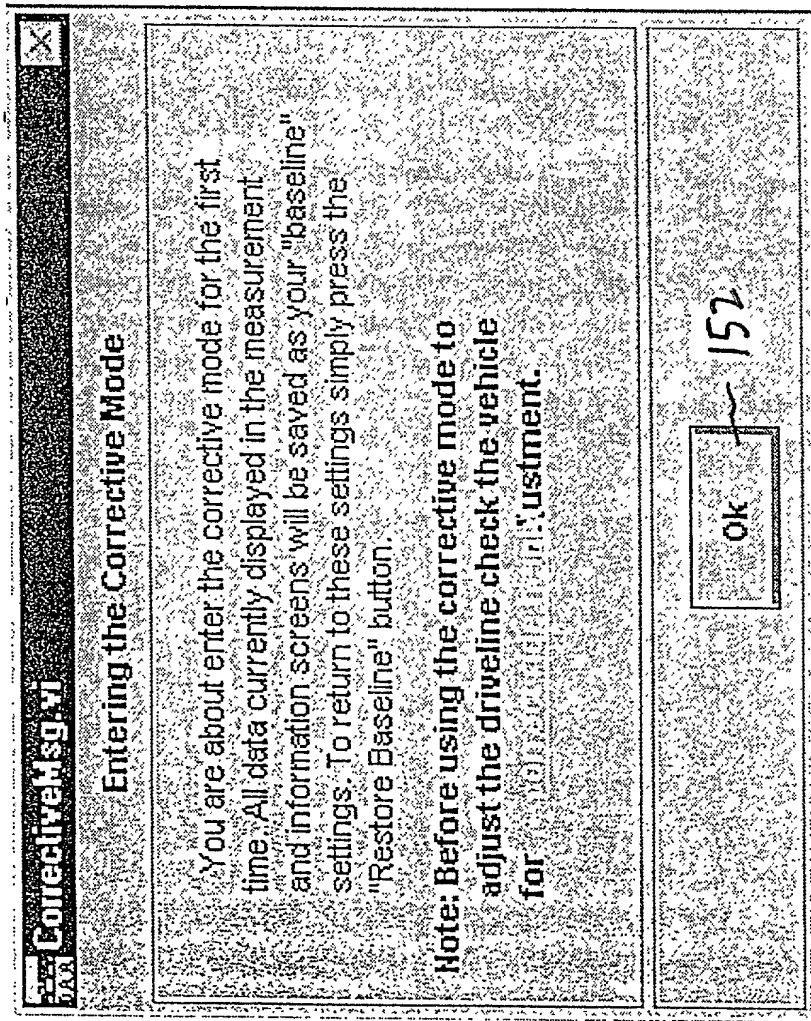


FIG. 15

DriveLine Angle Analyzer

File Help

Print Worksheet

Exit

Max DriveLine RPM: 2100.00 RPM

Drive Inertias: 22.25 ft-lbs

Coast Inertias: 25.00 ft-lbs

Trans to D head: 235.71 rad/sec²

D head to R head: 178.55 rad/sec²

Overall: 248.49 rad/sec²

Good

Trans: +10xg

#1 Prop Shaft: -30xg Dpl

#2 Prop Shaft: -30xg Dpl

D head: -10xg

#3 Prop Shaft: +23xg Dpl

R head: +7 D2g

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2-Piece Main DriveLine with 2 Axes

Comments:

The user would then enter all the measurements enter on the worksheet into this screen.

Frame Angle: 0.00

Transmission: 1.00

#1 Prop Shaft: -3.00

#2 Prop Shaft: 3.00

D head Axle: -3.00

Interaxle Shaft: 2.27

R head Axle: 7.00

Phase

Phase Angle: 1 deg

Phase Angle: 0 deg

Phase Angle: 0 deg

Length (in.)

Length: 24.00

Length: 24.00

Length: 14.87

Air Bag Height: 0.00

Front Ride Height: 0.00

Back Ride Height: 0.00

Note: Ride Fields are required for inertial calculations.

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New DriveLine F2

Open F3

Save F4

Print Worksheet F5

Information F6

Measurements F7

Corrective Mode

OK

Restore Baseline

Print Results F8

Directions F9

Help F10

Exit DAA E99

FIG. 16

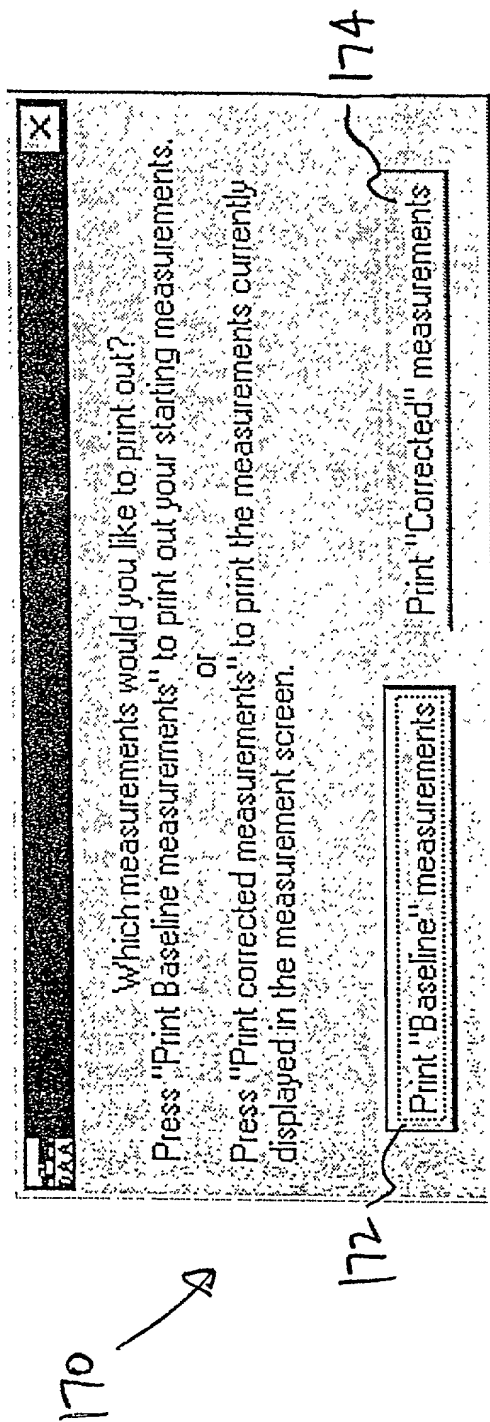


FIG. 17

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Print Results

Roadrunner
Vehicle Angle Analyzer

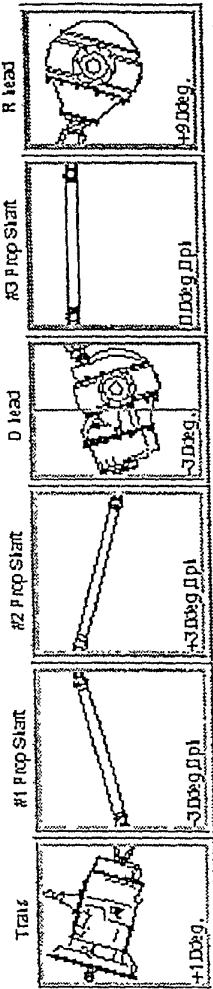
Driveline Angle Analyzer

Vehicle Information:

Truck Unit#	After
Fleet Name	Trilling outworks/leat
Fleet Account#	De
Truck Manufacturer	teer
Truck Model	1001D
VIN #	1de1
Trans Model#	eter
Trans Serial#	all
Citib Machine#	te
Citib Size	26100
# of Citib Springs	11b
Citib Part#	11b
Engine Make/Model #	sciees
Wheel Base	
Sheet Axle Tire Size	
Drive Axle Tire Size	
Main Driveline Series	Spicer 1610
Intermediate Driveline Series	Spicer 1650
Axle Manufacturer	Dana Spicer (formerly Eaton)
Axle Model#	404
D-Head Serial#	
R-Head Serial#	
Vehicle Mileage	
Vehicle Build Date	
Tested By	

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2-Piece Main Driveline with 2 Axles (Baseline)



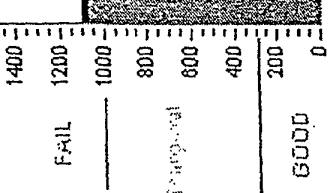
Fail This vehicle has exceeded the recommended maximum Torsional acceleration of 1000 rad/sec². The vehicle OEM should be consulted for correct driveline angles and ride heights.

Driveline Dimensions:

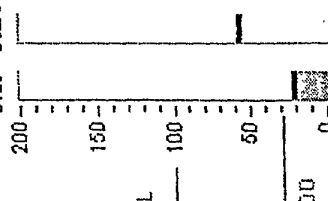
Angle deg	Phase	Length (in.)
Frame Angle: 0.00		
Transmission: 1.00		
#1 Prop Shaft: -3.00	0 deg	24.00
#2 Prop Shaft: 3.00	0 deg	24.00
D Head Axle: -3.00	0 deg	15.00
Intermediate Shaft: 0.00		
R Head Axle: 9.00		

Driveline Results:

Max Driveline RPM:	2100.00	RPM
Drive Torsionals:	21.12	ft-lb
Coast Torsionals:	56.93	ft-lb
Trans to D-Head:	235.71	rad/sec ²
D-Head to R-Head:	1060.68	rad/sec ²
Overall Results:	1066.55	rad/sec ²

Torsional accel
rad/sec²

Horizontal accel (ft-lb)



Air Bag Height

Front Ride Height	0.00
Rear Ride Height	0.00

Max Engine RPM	2100.00
In Top Gear	1.00

Comments:

The user would then enter all the measurements enter on the work

Print to printer(F1)	Print as jpeg(F2)	Cancel (Esc)
----------------------	-------------------	--------------

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FIG. 18

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Print Results

Roadrunner
DRIVE LINE ANALYZER

F.A.T.

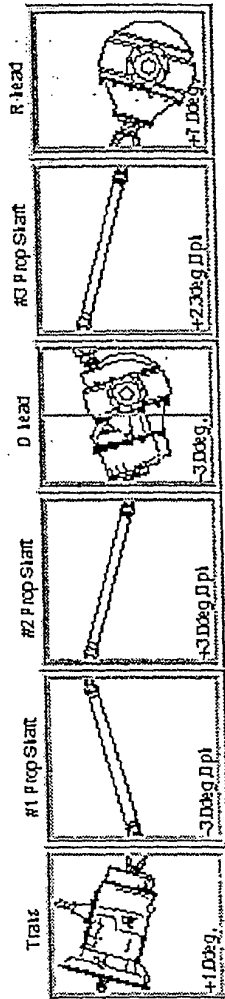
Driveline Angle Analyzer

Vehicle Information:

Truck Unit#	After
Fleet Name	Milling on worksite
Fleet Account#	He
Truck Manufacturer	User
Truck Model	World
Vin#	121
Truck Model#	After
Truck Serial#	all
Chassis Manufacturer	He
Chassis Size	1616k
# of Chassis Springs	11b
Chassis Part#	11k
Engine Make/Model#	100001
Wheel Base	
Steer Axle Tire Size	
Drive Axle Tire Size	
Main Driveline Series	Sporer 1610
Intermediate Driveline Series	Sporer 1620
Axle Manufacturer (formerly Eatz)	
Axle Model#	101
D-Head Serial#	
R-Head Serial#	
Vehicle Mileage	
Vehicle Build Date	
Tested By	

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2-Piece Main Driveline with 2 Axles (Corrected)



Good

Driveline Dimensions:

Angles	Phase	Length (in.)
Frame Angle:	0.00	
Transmission:	1.00	
#1 Prop Shaft:	-3.00	24.00
#2 Prop Shaft:	3.00	24.00
D Head Axis:	-3.00	
Intermediate Shaft:	2.27	14.87
R Head Axis:	7.00	

Driveline Results:

Max Driveline RPM	RPM
Drive Inertial:	27.25 ft-lb
Coast Inertial:	25.04 ft-lb
Trans to D-Head	235.71 rad/sec ²
D-Head to R-Head	78.86 rad/sec ²
Overall Results	248.49 rad/sec ²

Torsional accel
rad/sec²

Overall

3000

2800

2600

2400

2200

2000

1800

1600

1400

1200

1000

800

600

400

200

0

FAIL

Marginal

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

Inertial accel (ft-lb)

Drive Coast

200

150

100

50

0

FAIL

Marginal

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

GOOD

Comment:

The user would then enter all the measurements enter on

the work

Print to printer(F1)

Print as jpeg(F2)

Print as bmp(F3)

Cancel (esc)

FIG. 19

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Worksheet2.vi

DriveLine Angle Analyzer

Before measuring Angles

1. Check front and rear wheels
2. Place tams in NEUTRAL
3. Release parking brake

Measurement Directions:

To Measure Driveline Length:
All drive shaft lengths are measured from the yoke end cap centers.

To Measure Component Angles:
Positive angles (+) = The end closest to the front of the vehicle is higher than the end furthest from the front of the vehicle.

To check Driveline Phasing:
Driveline Phase is Zero degrees when the yoke end caps are aligned

Driveline Phase is 90 degrees when the yoke end caps are not aligned

Frame Angle deg

P3 Prop shaft Angle deg, Length in, Phase (click once) 0 deg 90 deg

P2 Prop shaft Angle deg, Length in, Phase (click once) 0 deg 90 deg

Auxiliary Angle deg

P1 Prop shaft Angle deg, Length in, Phase (click once) 0 deg 90 deg

Trans Angle deg

R-Head Angle deg

R-Head Angle deg

Track Unit #	Trans Serial #	Steer Axle Tire Size	Arle Manufacturer
Fleet Name	Clutch Manufacturer	Drive Axle Tire Size	D-Head Serial #
Fleet Account #	Clutch Size	Main Driveline Series	R-Head Serial #
Track Manufacturer	# of Clutch Springs	Interaxle Driveline Series	Vehicle Mileage
Track Model	Clutch Description	Auxiliary Trans Model #	Vehicle Build Date
VIN #	Logline Type	Auxiliary Trans Serial #	Tested by
Trans Model #	Wheel Base	<div style="display: flex; justify-content: space-around;"> <div>Print</div> <div>Cancel</div> <div>Esc</div> </div>	

FIG. 20


Rockwell
ENTER

Driveline Angle Analyzer

6X6

 Frame deg

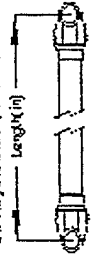
Before measuring Angles:

1. Chock front and rear wheels

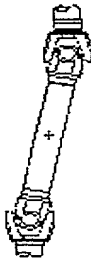
2. Place trans in NEUTRAL
3. Release parking brake

Measurement Directions:
To Measure Driveline Length:

All drive shaft lengths are measured from the yoke end caps centers.


To Measure Component Angles:

Positive angles (+) = The end closest to the front of the vehicle is higher than the end furthest from the front of the vehicle.



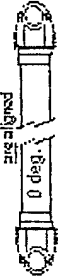
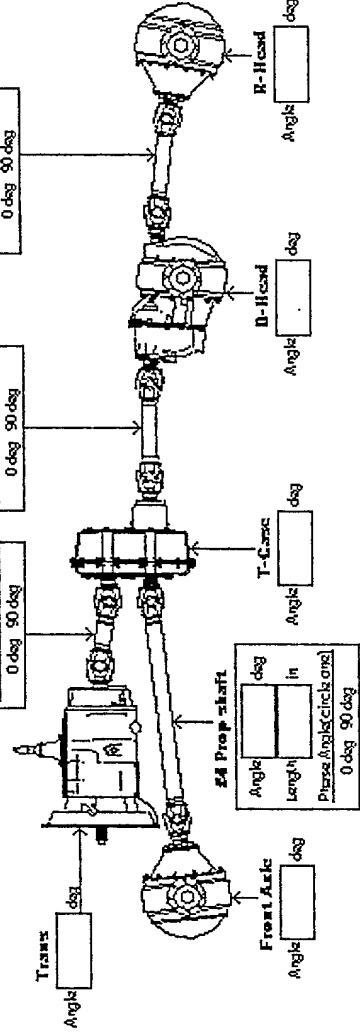
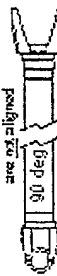
Front of Vehicle

Rear of Vehicle



Negative angles (-) = The end closest to the front of the vehicle is lower than the end furthest from the front of the vehicle.

To check Driveline Phasing:

 Driveline Phase is
Zero degrees
when the yokes and caps
are aligned

 Driveline Phase is
90 degrees
when the yoke end caps
are 90 aligned


Track Unit #	Trans Serial #	Steer Axle Tire Size	D-Hood Serial #
Fleet Name	Clutch Manufacturer	Drive Axle Tire Size	T-Cross Model #
Fleet Account #	Clutch Size	Main Driveline Series	T-Cross Serial #
Truck Manufacturer	# of Clutch Springs	Interchange Driveline Series	Vehicle Mileage
Truck Model	Clutch Description	Front Axle Driveline Series	Vehicle Build Date
VIN #	Engine Type	Axle Manufacturer	Tested by
Truck Model #	Wheel Base	<div>Print F1</div> <div>Cancel Esc</div>	

FIG. 21